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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/770,113	01/24/2001	Ye Wang	04770-00012	5357
7590	07/12/2004			EXAMINER
Joseph Stecewycz BANNER & WITCOFF, LTD. 28 State Street, 28th Floor Boston, MA 02109			JACKSON, JAKIEDA R	
			ART UNIT	PAPER NUMBER
			2655	11
DATE MAILED: 07/12/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/770,113	WANG, YE
	Examiner	Art Unit
	Jakieda R Jackson	2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)  Responsive to communication(s) filed on 4/26/04

2a)  This action is **FINAL**.      2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)  Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-18 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 4/26/04 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.

2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

13)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a)  The translation of the foreign language provisional application has been received.

14)  Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)

2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3-5-8

4)  Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. In response to the Office Action mailed January 26, 2004, applicant submitted amendments filed on April 26, 2004, to claim 17 correcting the informality noted in the office action, amended claim 18, and requested reconsideration of application.

### ***Response to Arguments***

2. Applicant argues, regarding claim 1, that the primary reference (Hilpert et al.) does not teach detection of beats. Instead, teaches detection of transients.

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-3, 6, 9-11 and 13-16** are rejected under 35 U.S.C. 103(a) as being unpatentable by Hiratsuka et al. (U.S. Patent No. 5,852,805), hereinafter referenced as Hiratsuka in view of Miyake (U.S. Patent No. 5,256,832), hereinafter referenced as Miyake.

Regarding **claim 1**, Hiratasuka discloses a method for concealing errors detected (column 2, lines 46-52) in an input audio bit stream (column 1, lines 52-59) said method comprising the step of:

replacing at least a first part of said erroneous audio segment with a corresponding part of said stored digital audio bit stream portion (replacing affected portion with proceeding portion; column 1, lines 60-65), but lacks;

detecting a first beat and a subsequent plurality of beats in the audio bit stream;

defining a first inter-beat interval extending between said first beat and a  $(k+1).sup.th$  subsequent beat;

storing at least a portion of the audio bit stream occurring within said first inter- beat interval;

detecting an erroneous audio segment occurring in a second inter-beat interval extending between said  $(k+1).sup.th$  beat and a  $(2k+1).sup.th$  subsequent beat.

Miyake discloses the steps of:

detecting a first beat (figure 2, element 203 and 204) and a subsequent plurality of beats in the audio bit stream (figure 6 with column 3, lines 12-14);

defining a first inter-beat interval extending between said first beat and a

(k+1).sup.th subsequent beat (beat interval; column 3, lines 12-42); and  
storing at least a portion of the audio bit stream occurring within said first  
inter- beat interval (store audio signal; column 6, lines 36-42).

Neither Hiratsuka nor Miyake teach detecting an erroneous audio segment  
occurring in a second inter-beat interval extending between said (k+1).sup.th  
beat and a (2k+1).sup.th subsequent beat.

However, it would have been obvious to one of ordinary skill in the art at  
the time the invention was made to thus modify Hiratsuka's in view of Miyake  
invention such that it detects, defines and stores a first beat, subsequent and  
errors, to reduce the probability of erroneous detection of a beat position (column  
14, line 68 – column 15, line 2), by using a likely undistorted portion of the data.

Regarding **claim 2**, neither Hiratsuka nor Miyake discloses a method  
wherein 'k' is an integer greater than or equal to 2.

However, it would have been obvious to one of ordinary skill in the art at  
the time the invention was made to thus modify Hiratsuka's in view of Miyake  
wherein 'k' is an integer greater than or equal 2 to space these intervals  
sufficiently far apart to reduce the effect of the pre-echo.

Regarding **claim 3**, Hiratsuka discloses a method wherein said stored  
audio bit stream portion includes at least one packet (one frame) positioned on  
at least one said beat (column 8, lines 7-11).

Regarding **claim 6**, Hiratasuka in view of Miyake discloses a method for  
concealing errors detected in an input audio bit stream comprising the step of

detecting a first beat for computing the envelope of the audio bit stream (Miyake; figure 3), but lacks using decoded IMDCT coefficients.

Cohen discloses the step of using decoded IMDCT coefficients (column 4, lines 16-30), to produce a replication of the signal within the decoder.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it computes the envelope of the audio bit stream using decoded IMDCT coefficients to improve error concealment for transform coded digitized audio signals (column 1, lines 6-8).

Regarding **claim 9**, Hiratsuka discloses the method for error concealment in a process of digital audio streaming (irregular error), the method comprising the steps of:

providing a bitstream (column 1, lines 52-59) and having a signal with repetitive sequences (repeated intervals (frames); column 1, lines 29-37) but lacks detecting at least two beats extracted from said bitstream and determining an inter-beat interval between said at least two beats.

Miyake discloses the steps of detecting at least two beats extracted from said bitstream (figure 6 with detects beats; column 3, line 13); and

determining an inter-beat interval between said at least two beats (beat interval; column 3, lines 12-42), to reduce error in beat position .

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that detects and determines beats, to reduce the probability of erroneous detection of

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a beat position (column 14, line 68 – column 15, line 2), by using a likely undistorted portion of the data.

Regarding **claim 10**, Hiratsuka discloses a signal having repetitive sequences comprising at least one signal from an audio signal (column 1, lines 21-32).

Regarding **claim 11**, Hiratsuka discloses a method wherein said signal having repetitive sequences including an error pattern (irregular pattern; 60-65).

Regarding **claim 13**, Hiratsuka discloses a method comprising the step of decoding at least a portion of said signal having repetitive sequences (column 1, lines 49-51).

Regarding **claim 14**, Hiratsuka discloses a method wherein said signal having repetitive sequences comprises at least one element consisting of a rhythm (repeated intervals; column 1, lines 29-32).

Regarding **claim 15**, Hiratsuka discloses a method further comprising the step of replacing said error pattern, one representing minimum value (column 1, lines 63-65), but not with music content.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to thus modify Hiratsuka's in view of Miyake such that it replaces error pattern with music content to use music, since MPEG usually codes music.

Regarding **claim 16**, Hiratsuka does not disclose a method further comprising the step of replacing one said beat with another said beat from a preceding bar.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's in view of Miyake replacing one beat with another beat from a proceeding bar because the beats would be expected to be similar.

5. **Claims 4, 7, 12 and 17-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiratsuka in view of Miyake and further in view of Cohen et al. (U.S. Patent No. 6,064,954), hereinafter referenced as Cohen.

Regarding **claim 4**, Hiratasuka in view of Miyake discloses a method for concealing errors detected in an input audio bit stream further comprising the step of detecting a first beat (Miyake; beat position detecting means; column 3, line 12), but lacks the step of computing the variance of the audio bit stream using decoded IMDCT coefficients.

Cohen discloses the step comprising computing the variance of the audio bit stream using decoded IMDCT coefficients (column 2, line 57-column 3, line 7), to produce a replication of the signal within the decoder.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it computes the variance of the audio bit stream using decoded IMDCT coefficients, to improve error concealment in transform coded digitized audio signals (column 1, lines 6-8)

Regarding **claim 7**, Hiratsuka in view of Miyake discloses a method for detecting a first beat (Miyake; column 3, line 12), but lacks the steps of

computing the variance of the audio bit stream using decoded IMDCT coefficients and utilizing a window-switching pattern.

Cohen discloses the step using decoded IMDCT coefficients and utilizing a window-switching pattern (column 2, lines 36 - column 3, line 7 and column 4, lines 16-30), to allow lower quantization noise.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it computes the variance of the audio bit stream using decoded IMDCT coefficients and utilizing a window-switching pattern, to improve error concealment in transform coded digitized audio signals.

Regarding **claim 12**, Hiratsuka in view of Miyake discloses a method for concealing errors detected in an input audio bit stream wherein the signal has repetitive sequences (Hiratsuka; repeated intervals (frames); column 1, lines 29-37), but lacks including a packet loss from a network and a burst error from a wireless channel.

Cohen discloses a method including packet loss (subtract) from a network (communication network) and a burst error (error signal; column 1, lines 10-45) from a wireless channel (column 2, lines 15-18), for more efficient schemes for audio signal coding.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it includes a packet loss from a network and a burst error from a wireless channel

to improve error concealment in transform coded digitized audio signal (column 1, lines 6-8).

Regarding **claim 17**, Hiratsuka in view of Miyake discloses a method for error concealment in a process of digital audio streaming, said method comprising the step of storing two consecutive inter-beat intervals (Miyake; figure 6) of the compressed audio bitstream (Hiratsuka; column 1, lines 12-16), but lacks that the digital audio stream is in a wireless terminal.

Cohen discloses that the digital audio stream is in a wireless terminal (column 2, lines 15-18), such that the transmission of the data can take a wide variety of forms.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that the terminal was wireless, to expand the versatility of transform coding of digitized audio signals (column 1, lines 6-8).

Regarding **claim 18**, Hiratsuka in view of Miyake discloses a memory (Hirastuka; figure 8B, element 52) for error concealment in a process of digital audio streaming (Hirastuka; column 9, line – column 10, line 5 and column 12, lines 1-8) comprising:

means for detecting musical beats (column 1, lines 8-11) and determining intervals between said beats (Miyake; column 3, lines 12-42); and

means for storing a two consecutive inter-beat intervals (Miyake; figure 6) of a compressed audio bitstream (Hirastuka; column 1, lines 12-16), but lacks

the memory comprising storing means for storing a signal history of music in a wireless terminal.

Cohen discloses storing means (storage devices) for storing a signal history (past samples; column 4, lines 1-5) in a wireless terminal (in a wireless terminal (column 2, lines 15-18), to produce a replication of the signal within the decoder.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to thus modify Hiratsuka in view of Miyake's invention such that it stores a signal history of music, since MPEG usually codes music.

6. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiratsuka in view Miyake, in further view of Vaupel et al. (U.S. Patent No. 5,256,832), hereinafter referenced as Vaupel.

Regarding **claim 5**, Hiratasuka in view of Miyake discloses detecting a first beat (Miyake; column 3, line 12), but lacks the step of specifically utilizing a window-switching pattern.

Vaupel discloses a window-switching pattern (column 5, lines 32-38), to compensate for aliasing components.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it detects a first beat comprising the step of utilizing a window-switching pattern, to reduce pre-echoes (column 2, lines 49-52).

7. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiratsuka in view Miyake in further view of of Chen et al. (U.S. Patent No. 6,199,039), hereinafter referenced as Chen.

Regarding **claim 8**, Hiratsuka discloses a method for error concealment in a process of digital audio streaming, but lacks the step of storing at least a portion of the audio bit stream including a step of storing said portion in a circular first-in first-out (FIFO) buffer.

Chen discloses the step of storing at least a portion of the audio bit stream includes a step of storing said portion in a circular first-in first-out (FIFO) buffer (column 4, line 66 – column 5, line 1), to produce clock cycles.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hiratsuka's invention such that it discloses a circular buffer, for computing IMDCT transformations and to make the pipeline processing highly efficient (column 4, lines 51-56).

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jakieda R Jackson whose telephone number is 703.305.5593. The examiner can normally be reached on Monday through Friday from 7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis I. Smits can be reached on 703. 306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.305.4700.

W. R. YOUNG  
PRIMARY EXAMINER

JRJ  
June 29, 2004